

# Rhodora

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# Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

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## A NEW OENOTHERA.

REGINALD RUGGLES GATES.

(Plates 100 and 101.)

MY cultures of *Oenothera* from seeds collected wild in various parts of the North American continent, have yielded a bewildering profusion of forms, races related to *O. biennis* L. and *O. muricata* L. being especially numerous. As is always the case when the number of forms under observation begins to be multiplied, the older lines of distinction between "species" break down, and it becomes finally an arbitrary matter, decided by convenience, where the line between two formerly distinct Linnaean species is to be drawn. Thus the multiplication of forms belonging to the two species mentioned above has necessitated drawing a more or less arbitrary line between them, as I have explained elsewhere,<sup>1</sup> and ranking all races on one side of this line with the *O. biennis* series, and all on the other side with the *O. muricata* series. Such a decision is of course based on a single character, because no two differential characters will hold for all the forms concerned.

I chose for this purpose the character of flower-size, and reckon all species of this group having petals 12-30 mm. in length, as belonging to *O. biennis*, and all having petals 9-15 mm. in length, with *O. muricata*. Flower-size is the most convenient character on which to base distinctions, and the same treatment should therefore be applied to *O. grandiflora* Sol.,<sup>2</sup> *O. Lamarckiana* Ser., and other species of the

<sup>1</sup> Gates, R. R. "Mutation in *Oenothera*." Amer. Nat. 45: 577-606, 1911.

<sup>2</sup> I pointed out elsewhere (Amer. Nat. 45: 588. 1911) that Solander should be credited with this species.



group. For example, species having small flowers with the *O. biennis* characters should be reckoned as belonging with the *biennis* series, even though they may have foliage more or less resembling *O. Lamarkiana*. This distinction is all the more important because the size of flower is usually correlated with other important flower differences, such as the habit of open- or close-pollination, while any of these flower characters may be found combined with any type of foliage.

This manner of treatment does not mean, of course, that Linnaean species should be differentiated on the basis of single characters, for obviously that is not what is meant by the species, the unit of systematists.

Notwithstanding the fact that single characters must be resorted to in classifying large series of races under one or another Linnaean species, yet this method is not always applicable, for races occur which represent such distinct combinations of characters that they are at once recognized as worthy of specific rank.

This is evidently the case with the species to be described in this paper. In its flower characters it belongs to the *biennis* series, yet in its foliage and its nearly glabrous character it clearly resembles *O. argillicola* Mack. But it possesses other features, such as the clearly subterminal sepal tips, which are reminiscent of another section of the genus.

The plants from which this species is described, were grown this year at the John Innes Horticultural Institution, Merton, Surrey, from one of several packets of seeds collected at Ithaca, New York, by Mr. H. B. Brown in 1909 and sent to me through the kindness of Professor W. W. Rowlee of Cornell University. Some of the other packets collected from this region gave races very distinct from this and resembling much more the ordinary *O. biennis* forms.

I at first intended giving this species the very appropriate designation *O. angustifolia*, but since that name is now a synonym, having been used by Miller, I have substituted *O. angustissima*. Type specimens from plants grown this year, are to be found in the British Museum (Natural History), London. The accompanying photographs, kindly taken by E. J. Allard, illustrate a rosette and two flowering shoots together with three leaves from the mature rosette. The description is as follows:

***Oenothera angustissima*, sp. nov.**

Leaves of mature rosette:—Length about 29 cm., greatest width

24–26 mm. Blade long, narrow, lanceolate, narrowing gradually to petiole, margin repand-denticulate, sometimes very obscurely so, more distantly repand-dentate below; midribs pinkish, broadening below to a wide, long, unmarginated petiole which is triangular in cross-section and greenish white on ventral surface. Veins on ventral surface of blade somewhat rugose, a very scattering, inconspicuous pubescence of fine, short hairs on both surfaces.

Mature plant:—Central stem nearly two metres high, with a ring of ascending crown branches (arising from the rosette) which frequently reach a greater height than the central shoot. Stems terete, fairly stout, reddish, nearly glabrous but bearing in places a few scattered short hairs and also very scattered long hairs which arise from red (anthocyanic) papillae. Late in the season (in this climate), very slender, short, terete secondary branches appear.

The lower cauline leaves have the same shape and other features as the radical leaves, but they are smaller, 25 cm. long, by 15.5 mm. wide, of nearly uniform width throughout the greater part of their length. The upper cauline leaves become gradually shorter with shorter petioles. Lowermost bracts 10 cm. long by 21 mm., in extreme width, scarcely petiolate, lance-pointed, narrowed abruptly at base; upper surface and veins on lower surface bearing a few short, scattering hairs; margin distantly and very obscurely glandular-denticulate. Upper bracts shorter, broader at base, and more or less curled or waved.

Flowering late in the season (nearly end of August when grown in the English climate as an annual). Inflorescence rather loose, tip of stem nutating as in *O. ammophila* Focke, and some forms of *O. muricata* L.

Flowers:—Petals 20 mm. long by 19 mm. broad, emarginate, deep yellow, not opening out flat, style short (stigma surrounded by the anthers), lobes of stigma usually opening only to an angle of about 45°. Length of hypanthium 24 mm., length of ovary 13 mm., thickness of ovary nearly 3 mm., thickness of hypanthium slightly over 2 mm.; length of bud cone 15 mm., diameter at base nearly 5 mm., length of sepal tips 5 mm. Sepal tips subterminal, hence separated at base, nearly parallel or somewhat spreading, reddish on inner face, especially at base, and in young buds. Buds nearly glabrous, cone slightly quadrangular, reddish stripes on margins of each sepal, median ridge green, hypanthium usually faintly pinkish, ovary reddish, with scattered red papillae bearing long hairs, hypanthium with scattered short hairs, sepals shiny, with very scattered long and short hairs.

Capsules:—Reaching 35 mm. in length, about 6.5 mm. in diameter, gradually tapering from near the base, green or with scattered patches of red, nearly glabrous, but with few, scattered long hairs, arising from mostly green papillae.

Diagnosis:—Herba biennis. Folia radicalia longa, angustissimē



lanceolata, longē petiolata, circa 29 cm. longa et 25 mm. lata, utrinque sparsē pubescentia. Folia caulina gradatim breviora, breviter petiolata. Caulis teres, subglaber, basi ramis pluribus verticillatis ascendentibus ipsum saepe excedentibus instructus. Spica sublaxa, superne nutans. Petala flava, circa 20 mm. longa, ascendentia. Antherae stigmata attingentes. Alabastrae subglabrae, obsoletē quadrangulares, apices sepalorum subterminales.

ROYAL COLLEGE OF SCIENCE, LONDON.

#### EXPLANATION OF PLATES.

Plate 100. *Oenothera angustissima*, sp. nov. Rosette, showing the beginning of the crown branches before the central stem appears.

Plate 101. The same. Two flowering shoots showing leaves, flowers and fruits; and three leaves from the mature rosette.

### SYSTEMATIC STUDIES ON OENOTHERA,—II. THE DELIMITATION OF OENOTHERA BIENNIS L.

HARLEY HARRIS BARTLETT.

(Plates 102 and 103.)

THE problem of limiting the application of the name *Oenothera biennis* L. to one of the many forms which now pass under this name is largely bibliographical, to be solved by a careful analysis of the Linnaean account (Sp. Pl. ed. 1. p. 346. 1753.) which is quoted below:

*biennis* 1. OENOTHERA foliis ovato-lanceolatis planis. *Vir. cliff.* 33. *Hort. ups.* 94. *Gron. virg.* 254. *Roy. lugdb.* 251. *Gort. gelr.* 78.  
*Oenothera foliis ovato-lanceolatis denticulatis, floribus lateralibus in summo caulis. Hort. cliff.* 144.  
*Lysimachia lutea corniculata. Bauh. pin.* 245. 516. \* *Moris. hist.* 2. p. 271, f. 3, t. 11, f. 7.  
*Habitat in Virginia unde 1614, nunc vulgaris Europae. ♂*

Although no part of this account is original to the *Species Plantarum*, Linnaeus was himself the author of the first two of the three polynomials of which it consists. In 1737 Linnaeus published companion works, the *Viridarium Cliffortianum* and the *Hortus Cliffortianus*, in which these polynomials first appeared. We find in the

preface to the *Viridarium* the following explanation of the relationship between the two works:

"Nomina quibus enumerantur plantae mutuata sunt ex Horto Cliffortiano fere omnia (paucis emendatioribus), singulis adjecto duplici numero, quorum priore paginam Horti Tui indicavi, posteriore vero generis speciem, ut si quae differentia minus indubitata occurreret, in majori opere eo facilius consulerentur synonyma."<sup>1</sup>

It is therefore clear that the following accounts, with the exception of the synonymy which is quoted in the *Hortus*, refer to the same plant.

"*Oenothera foliis ovato-lanceolatis planis.*

*Oenothera foliis ovato-lanceolatis denticulatis, floribus lateralibus in summo caulis.* 144. 1."

*Virid. Cliff.* p. 33.

- "1. *Oenothera foliis ovato-lanceolatis denticulatis, floribus lateralibus in summo caulis.*

*Onagra latifolia.* *Tournef. inst.* 302.

*Lysimachia lutea corniculata.* *Bauh. pin.* 245. 516.

*Lysimachia lutea corniculata non papposa virginiana major.*  
*Moris. hist.* 2. p. 271. f. 3, t. 11. f. 7.

*Lysimachia lutea corniculata latifolia lusitanica.* *Barr. rar. t.* 1232.

- a. *Onagra latifolia, floribus amplis.* *Tournef.*

*Onagra latifolia, flore dilutiore.* *Tournef.*

*Crescit in Virginia, aliisque Americae locis, ante centum et viginti annos in Europam translata, nunc spontanea facta, copiose crescit ubique in campis arenosis Hollandiae.*

*Primo anno vix floret, altero floret et perit."*

*Hort. Cliff.* p. 144.

The third polynomial quoted by Linnaeus in the *Species Plantarum*, *Lysimachia lutea corniculata* Bauhin, has not been satisfactorily identified by recent authors.<sup>2</sup> Nevertheless Bauhin's description is a lengthy one, and, for his time remarkably satisfactory, so that it is

<sup>1</sup> "The names by which the plants are enumerated are almost all taken from the *Hortus Cliffortianus*, a few having been somewhat improved and to each having been added a duplex number, by the first part of which I have indicated the page of your *Hortus* and by the last the species of the genus, so that if any somewhat doubtful distinction should present itself, the synonyms of the larger work might be the more readily consulted."

<sup>2</sup> Dr. R. R. Gates at one time attempted to identify *Lysimachia lutea corniculata* with what we now know as *Oenothera Lamarckiana*. See the following papers:

The earliest description of *Oenothera Lamarckiana*. *Science*, 2d. ser. xxxi (1910) pp. 425-426.

Early historico-botanical records of the *Oenotheras*. *Proc. Iowa Acad. Sci.* xvii (1910) pp. 85-124.



by no means improbable that his plant, which was the first *Oenothera* to be introduced into the botanical gardens of Europe, may yet be identified with some degree of plausibility. Whatever Bauhin's plant may have been, however, there is nothing in the description to indicate its identity with the Linnaean plant of the sand-dunes of Holland. It cannot, therefore, be chosen as the type to bear the name *Oe. biennis*, since a Linnaean species should certainly be typified by a plant with which Linnaeus was himself acquainted.

In the case of many hopelessly composite Linnaean species the name has been associated by later botanists with that one of several synonyms which Linnaeus referred to in the closing line of the diagnosis,—“Habitat in Virginia,” or perhaps “Habitat in Canada.” In such a case Linnaeus has been tacitly interpreted as having himself pointed out that a Gronovian diagnosis (sometimes associated with a Clayton specimen) or a Kalm specimen in his herbarium, should be crucial in interpreting his species, rather than earlier references to plants of which he had no personal knowledge. In the case of *Oenothera biennis*, however, the “Habitat in Virginia unde 1614, nunc vulgaris Europae” clearly refers to the similar statement in the *Hortus Cliffortianus*, “Crescit in Virginia, aliisque Americae locis, ante centum et viginti annos in Europam translata, nunc spontanea facta, copiose crescit ubique in campis arenosis Hollandiae,” and affords no basis whatever for selecting as the type of *Oe. biennis* any other plant than that which grew in the dunes of Holland. As a matter of fact, *Oenothera foliis ovato-lanceolatis planis* L. was admitted to Gronovius' *Flora Virginica* (p. 154, not p. 254 as cited in *Sp. Plant.*) on the basis of Linnaeus' statement in the *Hortus Cliffortianus* that the plant of Holland had been introduced from Virginia, and not on the basis of notes or specimens from Clayton.

The plant which grew abundantly on the sand-dunes between Haarlem and Leyden in 1737, which Linnaeus was probably able to see in the course of a half hour's walk from the garden of Clifford, was no doubt the same species which is common there today. The fact that it has not been exactly duplicated in the material which has recently been assembled from American localities is not at all surprising, in view of the fact that our flora contains a number of closely related species and varieties, some of which seem to be very local in their distribution. I am informed by Professor de Vries that there are but two strains of *Oenothera* in the vicinity of Amsterdam which



conform to what is usually called, in a collective sense, *Oe. biennis*. They differ only in flower color, one having flowers of a lighter color than the other. The light-colored form has only become abundant in recent years, through its prompt occupation of a newly created habitat, the rights of way of the more recently constructed railroads. It has long occurred at many localities in Holland, however, and may be identified with reasonable certainty with the var. *a* of Linnaeus' *Oenothera foliis ovato-lanceolatis denticulatis, floribus lateralibus in summo caulis* (Hort. Cliff.). To be sure Linnaeus assigned this plant no name of his own, citing merely two polynomials of Tournefort's. One of them, however, *Onagra latifolia, flore dilutiore* Tourn. was merely a new name for Hermann's *Lysimachia corniculata non papposa, Virginiana, major, flore sulphureo* (Hort. acad. Lugd.-Bat. Catalogus, 1687) which was grown and described at Leyden half a century before Linnaeus' residence in Holland. We are therefore justified in treating the lighter-flowered plant of Holland as a variety of the other, which is to be regarded as the type of *Oenothera biennis*. The two plants, according to Professor de Vries, differ in the one character only.

It would hardly have been worth while to give in so much detail the reasons for selecting the common plant of Holland as typical *Oenothera biennis* but for the fact that certain botanists do not seem to realize that such a selection should be made according to principle. Dr. Britton, for instance, seems to have been able to select from among the American *Oenotheras* one which he arbitrarily pronounced to be *Oenothera biennis* "in the strictest sense."<sup>1</sup>

In a recent paper, Dr. Gates<sup>2</sup> has mentioned a specimen in the Linnaean Herbarium which he calls "the type specimen of Linnaeus's *Oenothera biennis* in the Species Plantarum." It would seem to be unnecessary to point out that Linnaeus had no "types" in the modern sense, and that the specimens in the Linnaean Herbarium cannot be

<sup>1</sup> "... a number of plants of *Onagra biennis* (in the strictest sense), growing in uncultivated land in the New York Botanical Garden in 1903, were selected to form the basis of a pedigree culture in 1904." Macdougall, Vail, Shull, and Small; *Mutants and Hybrids of the Oenotheras*, p. 9, 1905, "Parental individuals were selected and verified by Dr. N. L. Britton in 1903, and from the seeds furnished by them the plants were grown which furnished material for the descriptive diagnosis published in a previous paper (Macdougall, Vail, Shull and Small, 1905). This is not the species growing wild in Europe and cited by de Vries in his 'Mutationstheorie.'" Macdougall, Vail, and Shull: *Mutations, Variations and Relationships of the Oenotheras*, p. 56, 1907.

These quotations refer to the same culture.

<sup>2</sup> Gates, R. R.: *Mutation in Oenothera*. *American Naturalist* xlv (1911) pp. 577-606.

considered as "types" unless there is actual evidence that Linnaeus drew up his description wholly or in part from the preserved specimen.<sup>1</sup> In the case of *Oenothera biennis*, especially, where nothing in the account given in the *Species Plantarum* is original to that work, no herbarium specimen can be interpreted as a type unless it is definitely associable with the *Hortus Cliffortianus*. Mr. Gates himself states<sup>2</sup> that "... the actual specimens in the British Museum... which are supposed to have served as the types for the *Hortus Cliffortianus* are not fully authenticated. The handwriting is said not to be that of Linnaeus..." etc. Under the circumstances the best course seems to be to accept as true *Oenothera biennis* the common plant of Holland which Professor de Vries has referred to under this name in his *Mutationstheorie*. A diagnosis of this plant follows.

*OENOTHERA BIENNIS* L. Biennial. Mature rosettes large, sometimes 65 cm. in diameter (smaller if forced to flower the first year). Outer leaves with petioles 9-10 cm. long and oblanceolate or oblong lanceolate blades, 20-24 cm. long, 5.5-7.5 cm. broad, gradually narrowed to the sinuate-dentate base, distantly and minutely repand-denticulate toward the abruptly obtuse or acutish apex, with a sparse pubescence on both sides of short, sharp, arcuate hairs. Flowering plant about 7-10 dm. high, roughly pyramidal in outline, bearing cauline branches in all the lower axils, and flowers in all the upper axils of the main axis; branches with empty axils below and flowers above; stems and foliage green. Stem pubescence consisting of four types of hairs: I sharp-pointed, thick-walled granulose-roughened hairs from a tuberculate base (few); II similar but shorter hairs varying greatly in length, without a tuberculate base (the predominant type); III thin-walled hairs, round at the apex, of practically uniform diameter, or slightly clavate (few); and IV very small, ampulliform thin-walled hairs (mostly in the inflorescence). Lower stem leaves with blades about 16 cm. long, 4.5 cm. wide, lanceolate, acute, distantly denticulate, tapering at the repand-dentate base to a petiole about 4 cm. long. Uppermost stem leaves short-petioled, forming a gradual transition to the lower bracts, 10 cm. long, 3 cm. wide. Lower leaves of the branches (subtending neither branches nor flowers) ovate, acute, 5.5 cm. long, 3 cm. wide. Leaf-like lower bracts of both primary and secondary axes passing gradually to practically entire narrowly lanceolate bracts about 25 mm. long and 4 mm. wide, (i. e.,  $2\frac{1}{2}$  times as long as the ovary at flowering time), clothed with hairs of type II above and types II and III below. Flowers of medium size. Ovary 10 mm. long. Hypanthium 35 mm. long, slender, expanding from a diameter

<sup>1</sup> In this connection see —

Hitchcock, A. S.: *Types of American Grasses*. Cont. U. S. Nat. Herb. xii (1908) p. 115.

<sup>2</sup> *Am. Nat.*, xlv (1911) p. 587.



of 1.3 mm. near the base to 3 mm. at the orifice, sparsely pubescent with a few arcuate hairs of type II and more numerous perpendicular hairs of type III. Calyx segments deflexed in pairs, about 23 mm. long and 4 mm. wide above the base, bearing slender, strictly terminal, red-tipped free appendages 3 mm. long, moderately pubescent, hairs of type II sparse near base but very abundant on the free calyx-tips, hairs of type III predominant except on the free tips, where they are lacking, hairs of type IV abundant on the free tips but absent elsewhere. Petals yellow, becoming darker on fading with a reddish area at the base, obcordate, 20 mm. long, 27 mm. wide. Stigma lobes 6–7 mm. long, appressed, lying at the center of the unopened bud (therefore shorter than the corolla after expansion) surrounded by the slightly longer anthers. Capsules loosely aggregated but still overlapping in the lower part of the fruiting spike, rather more densely aggregated above, mostly between 23 and 27 mm. in length, shorter than the subpersistent foliaceous bracts except above, subquadrangular, apices of the valves neither spreading nor conspicuously emarginate, sparsely pubescent with arcuate hairs of type II and densely viscid-puberulent with very short hairs of type III. Seeds light brown, rather large, 1.7 to 2 mm. long.—Seed received in 1910 from Professor de Vries with data as follows: "*Oenothera biennis*. Pure seed, fertilized by myself in my garden from plants whose parents were collected in the sand-dunes of Holland. . . . The pure race,—the *biennis* often contains the var. *sulphurea*." Plants set out at Bethesda, Md., in the spring of 1911 did not flower during that season and were winter-killed. Sister plants, however, flowered in the garden of Prof. B. M. Davis at the Bussey Institution, and were self-pollinated by him. Their progeny, forced by being started in the greenhouse in the winter and set out early in the spring, flowered in 1912 both at Philadelphia and Bethesda. Herbarium specimens; *Bartlett* 2723, 3113 and 3160.

***Oenothera biennis* var. *sulphurea* de Vries in litt.** *Formae speciei typicae omnino similis floribus pallidioribus sulphureis exceptis.* An *Lysimachia corniculata non papposa, Virginiana, major, flore sulphureo* Herm. (Hort. Lugd.-Bat. Cat. p. 396. 1687) et *Lysimachia lutea corniculata flore sulphureo* Herm. (Florae Lugd.-Bat. Flores, p. 95. 1690) et *Oenothera foliis ovato lanceolatis denticulatis, floribus lateralibus in summo caulis*, var. *a*, Linn. (Hort. Cliff. p. 144. 1737)?—Occurring with the typical form in the sand-dunes of Holland.

BUREAU OF PLANT INDUSTRY, Washington, D. C.

#### EXPLANATION OF THE PLATES.

Plate 102. Lower figure: *Oenothera biennis*, mature rosette of a plant grown as an annual.

Upper figure: The same plant in flower, showing the long branches of the lower axils and the simple inflorescence of the main axis.

Plate 103. Branch and lower leaf of the same plant.

Photographs by B. M. Davis, of "11.16 a *biennis* H," in cultures grown from seeds of de Vries at the University of Pennsylvania, 1911.

REPORTS ON THE FLORA OF THE BOSTON  
DISTRICT,—XVI.

THE records on which the reports on the *Gramineae* are based have been unusually full, except in the case of some of the more recently described species. Over 3500 of these records are already on file with the Committee. These represent the *Gramineae* of the Gray Herbarium, the Herbaria of the New England Botanical Club, Boston Society of Natural History, Peabody Academy of Science at Salem, Wellesley College and Yale University (Dr. C. W. Swan's collection), and the personal herbaria of J. R. Churchill, Walter Deane, F. F. Forbes, F. W. Grigg, F. Tracy Hubbard, C. H. Knowlton, John Murdoch, Jr., and R. A. Ware.

The collections from the Peabody Academy at Salem and from the Swan Herbarium at Yale were sent to the Gray Herbarium, where they were diligently verified. Prof. M. L. Fernald and Mr. F. Tracy Hubbard have been of special service in this work. The ranges given are based on actual specimens.

In studying *Panicum* constant use has been made of the Hitchcock & Chase monograph, Contrib. U. S. Nat. Herb. xv. 1910.

## GRAMINEAE.

## ZEA.

[Z. MAYS L. Occasional on waste land and along railways. Probably does not reproduce itself wild.]

## ANDROPOGON.

**A. furcatus** Muhl. Dry open ground, frequent throughout.

**A. glomeratus** (Walt.) BSP. Moist field, Duxbury (C. H. Knowlton, Sept. 10, 1911); Hingham, according to T. T. Bouvé, The Botany of Hingham, 1893, as *A. macrourus* Michx.

**A. scoparius** Michx. Dry sandy and rocky soil, very common throughout. Probably our most abundant grass.

**A. virginicus** Muhl. Dry ground, Blue Hill, Milton (E. & C. E.



*Faxon*, Oct. 7, 1878; *E. Faxon & J. R. Churchill*, Oct. 17, 1884; *W. H. Manning*, Aug. 15, 1894; Norwood (*E. F. Williams*, Sept. 15, 1895); Waltham (*S. E. French*, Sept. 10, 1888).

## TRAGUS.

**T. RACEMOSUS** Scop. South Boston flats (*C. E. Perkins*, July 20, 1882, and Aug. 20, 1882). A fugitive plant, native in middle and southern Europe, the Canary Islands, Afghanistan and India.

## SORGHASTRUM.

**S. nutans** (L.) Nash. Dry sandy soil, frequent throughout.

## SORGHUM.

**S. HALEPENSE** (L.) Pers. South Boston (*C. E. Perkins*, Sept. 1 and 27, 1880); dump, Watertown (*R. Hoffmann*, Sept. 18, 1899).

**S. VULGARE** Pers. Dumps and made land; Lawrence, Brookline, Boston and South Boston, not collected recently. Probably seeded from corn-brooms.

## DIGITARIA.

**D. filiformis** (L.) Koeler. Dry sterile soil; frequent except in Essex County, where it is reported only from Andover.

**D. HUMIFUSA** Pers. Dry soil; frequent from Hingham and Quincy northward, probably throughout.

**D. SANGUINALIS** (L.) Scop. Waste and cultivated ground, a very common weed throughout.

## PASPALUM.

**P. Muhlenbergii** Nash. Fields and pastures, very common throughout.

**P. psammophilum** Nash. Dry sand, Halifax (*C. H. Knowlton & W. P. Rich*, July 15, 1906); Duxbury (*C. H. Knowlton*, Sept. 10, 1911). See RHODORA xiv. 174, 1912.

## PANICUM.

**P. Addisonii** Nash, "Andover, *Blake* in 1882"; see Hitchcock & Chase, Contrib. U. S. Nat. Herb. xv. 244, 1910.

**P. agrostoides** Spreng. Low open ground, frequent.

**P. Ashei** Pearson. Rocky woods, Melrose (*W. P. Rich*, June 28, 1894, July 4, 1894, June 16, 1895).

**P. barbulatum** Michx. Dry sandy soil; Malden (*R. Frohock*, 1879); Mattapan, Dorchester (*J. R. Churchill*, June 21, 1890); Sherborn (*M. L. Loomis*, no. 1007, June 14, 1912); Hanson (*J. A. Cushman*, no. 2925, June 5, 1908).

**P. boreale** Nash. Moist soil, occasional in northern half of district, also at Sharon.

**P. Boscii** Poir. Rocky woods, Horn Pond Hill, Woburn (*A. S. Pease*, no. 11,364, July 8, 1908); Dorchester (*J. R. Churchill*, July 1, 1882); Natick (*C. H. Knowlton*, Sept. 4, 1898).

**P. calliphyllum** Ashe. Medford (*C. E. Perkins*, Aug. 3, 1881). The type collection near Ithaca, N. Y., and a collection at Painesville, O. are the only others known. See Hitchcock & Chase, Contrib. U. S. Nat. Herb. xv. 178, 1910.

**P. capillare** L. Gardens, shores and waste land, a very common weed throughout.

**P. clandestinum** L. Dry or moist soil, often in thickets or along streams, frequent.

**P. Clutei** Nash. (*P. mattamuskeetense* Ashe of Gray's Manual, 7th ed., 1908; see Hitchcock & Chase, Contrib. U. S. Nat. Herb. xv. 188, 1910). Framingham (*E. C. Smith*, June 21, 1892).

[*P. columbianum* Scribn. In RHODORA iii. 126, 1901, this species is cited from Nantasket Beach, Massachusetts, collected by Dr. Ezra Brainerd, June 11, 1896; but this specimen has been examined by Hitchcock & Chase who pronounce it to be *P. tsugetorum* Nash, the hairy form called by them "*P. lanuginosum siccanum*" in Contrib. U. S. Nat. Herb. xv. 245, 1910. This variety was published by them in RHODORA, viii. 207, 1906.]

**P. commutatum** Schultes. Dry bank in woods, Wellesley (*W. P. Rich*, June 14, 1899; see Hitchcock & Chase, Contrib. U. S. Nat. Herb. xv. 306, 1910).

**P. dichotomiflorum** Michx. Wet shores, cultivated and waste land, frequent.



**P. dichotomum** L. Woods, usually in dry soil, common throughout.

**P. heterophyllum** Bosc. (*P. columbianum* Scribn; see Hubbard, RHODORA xiv. 171-2, 1912). Dry sandy soil, sometimes in rich open woods; occasional from Holbrook, Canton, Milton, Westwood, Newton, Wellesley and Framingham northeastward.

**P. heterophyllum** Bosc, var. **thinium** (Hitchc. & Chase) Hubbard (*P. columbianum* Scribn., var. *thinium* Hitchc. & Chase; see Hubbard, RHODORA xiv. 172, 1912). Winchester (*C. E. Perkins*, Sept. 1, 1882); sandy hillside, Manchester (*F. T. Hubbard*, Oct. 1, 1912).

**P. huachucae** Ashe. Dry soil, eight stations in central part of district.

**P. huachucae** Ashe, var. **fasciculatum** (Torr.) Hubbard (var. *silvicola* Hitchc. & Chase; see Hubbard, RHODORA, xiv. 171, 1912). In moister soil than the typical form, often in woods; common from North Scituate, Canton and Norwood northward, probably throughout.

**P. implicatum** Scribn. Dry and moist soil, common.

**P. languidum** Hitchc. & Chase. North side of Prospect Hill on new road, Waltham (*E. F. Williams*, Oct. 6, 1895). Mr. F. Tracy Hubbard published in RHODORA xiv. 37, 1912, *P. languidum*, no. 205, from West Gloucester, specimens having been submitted to Mrs. Chase at Washington. Since then Mrs. Chase has decided that the plant is *P. tennesseense* Ashe.

**P. latifolium** L. Sandy and rocky soil, usually in open woods; frequent in northern and central portions, apparently rare southward.

**P. Lindheimeri** Nash. Dry soil, rare or local; Manchester, South Boston, West Roxbury, Canton Junction, Wellesley, Framingham.

**P. linearifolium** Scribn. Dry soil, mostly in woods; occasional, especially in central section.

**P. lucidum** Ashe. Rich woods, rare; Manchester, Melrose, Quincy, Framingham.

**P. macrocarpon** Torr. (*P. Scribnerianum* Nash; see Hubbard, RHODORA xiv. 184, 1912). Dry sand and gravel; common in most of the district, but not reported from the extreme south.

[*P. mattamuskeetense* Ashe. The plant reported under this name in RHODORA iii. 114, 1901, proves to be *P. commutatum* Schultes according to Mrs. Chase in litt.]

**P. meridionale** Ashe. Rich open woods; Beverly Farms, one

specimen (*F. T. Hubbard*, no. 475a, Sept. 29, 1912); near Silver Lake, Wilmington (*G. G. Kennedy*, June 11, 1899); Wellesley, no data, specimen in Herb. Wellesley College;<sup>1</sup> top of Blue Hill, Milton (*G. G. Kennedy*, July 10, 1899); woods by Purgatory Swamp, Norwood (*F. F. Forbes*, June 27, 1903).

**P. microcarpon** Muhl. Blue Hills (*W. H. Manning*, Aug. 11, 1894); "The Pines," Milton (*G. G. Kennedy*, Aug. 23, 1894); Milton, woods near Crossman's (*J. R. Churchill*, July 4, 1910); Milton (*H. H. Bartlett*, no. 844; see Hitchcock & Chase, *Contrib. U. S. Nat. Herb.* xv. 182, 1910); Blue Hills, West Quincy (*J. R. Churchill*, July 11, 1891); Wellesley (*W. P. Rich*, June 14, 1899).

**P. miliaceum** L. Waste land, occasional.

**P. oligosanthos** Schultes. Rocky soil, reasonably common, Waverly, Belmont (*F. T. Hubbard*, Oct. 13, 1912). An extension of range northward from New Jersey.

**P. oricola** Hitchc. & Chase. Sand dunes, Ipswich (*K. M. Wiegand*, June 25, 1908; *F. T. Hubbard*, Oct. 5, 1911; *M. L. Fernald*, Oct. 15, 1911); Scituate (*F. F. Forbes*, Aug. 15, 1909).

**P. philadelphicum** Bernh. Muddy and sandy pond shores, rare; Foster's and Long Ponds, Andover; Chadwick's Pond, W. Boxford; Johnson's Pond, Groveland; Winter Pond, Winchester.

**P. sphaerocarpon** Ell. Dry sandy and gravelly woods and fields, frequent.

**P. spretum** Schultes. Swamps and marshes, common.

**P. strictum** Pursh. (*P. depauperatum* Muhl.; see Hubbard, *RHODORA* xiv. 169, 1912). Dry sandy and gravelly soil, common throughout.

**P. subvillosum** Ashe. Dry soil, Gloucester, Ipswich, Wilmington, Malden, Woburn, Natick.

**P. tenesseeense** Ashe. Woods and fields, usually in coarse soil; Gloucester, Manchester, Wenham, Winchester, Cambridge, Boston, Framingham, Milton, Scituate, Sharon, Stoughton.

**P. texanum** Buckl. Cotton waste from mills, Malden (*F. S. Collins & C. W. Swan*, Sept. 14-15, 1888). A fugitive weed, native in Texas and northern Mexico.

**P. tsugetorum** Nash. Dry sandy fields and woods, frequent.

<sup>1</sup> The specimens reported in *RHODORA* xi. 82, 1909, from Wellesley prove to be *P. tsugetorum*; those reported from Ipswich, in the same notice, prove to be *P. tsugetorum* and *P. oricola*.



**P. umbrosum** Le Conte. (*P. Ashei* Pearson; see Hubbard, RHODORA xiv. 173, 1912). Dry rocky woods; Manchester, Lynn, Melrose, Malden, West Roxbury, Weston, Blue Hills, West Quincy, Walpole.

**P. villosissimum** Nash. Parker Street, Boston (*C. W. Swan*, June 19, 1885); Framingham (*E. C. Smith*, June 29, 1898).

**P. virgatum** L. Meadows and edges of marshes along the coast, reaching inland to Boxford, Concord and Bridgewater.

**P. virgatum** L., var. **cubense** Griseb. (var. *obtusum* Wood of Gray's Manual, 7th ed., 1908; see Hitchcock & Chase, Contrib. U. S. Nat. Herb. xv. 92, 1910). Occasional near the coast.

**P. Wernerii** Scribn. Dry soil, Winchester, Wellesley, Dover, Natick, Sherborn, Westwood, Walpole, Holbrook, Norwell.

**P. xanthophysum** Gray. Gravel pit, Lowell Junction, Andover (*A. S. Pease*, Aug. 7, 1903); railway spur, Wellesley (*K. M. Wiegand*, July 24, 1912); Framingham, not uncommon (*E. C. Smith* in RHODORA i. 98, 1899).

C. H. KNOWLTON	} Committee on Local Flora.
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## A NORTHERN VARIETY OF *ERIGERON RAMOSUS*.

M. L. FERNALD and K. M. WIEGAND.

FOR several years botanists collecting in the northern United States and Canada have been puzzled by a plant which seemed to be near *Erigeron ramosus*, as known farther south, but which in its sparser and more divergent pubescence often seemed referable to *E. annuus*. In studying the plants of western Newfoundland it was found that there the only *Erigeron* of this group had these transitional characters, and in the absence of *E. annuus* from the island obviously could not be considered a hybrid between that species and *E. ramosus*. A recent study of all available material shows that this tendency of *E. ramosus*, with the foliage greener than in the ordinary plant and with the stem

and leaf-surfaces sparsely hispidulous or nearly glabrous, is the characteristic form of *E. ramosus* in western Newfoundland, the Maritime Provinces and northern New England, where typical *E. ramosus* is apparently very local. This same form is found across northern New York, around the Great Lakes, and in the northwestern states, where it was long ago noted by Gray, who, on account of its pubescence placed it with *E. annuus* of eastern America, with the comment: "also in Oregon, &c., in a form quite intermediate between this [*E. annuus*] and the following [*E. strigosus* Muhl. i. e. *E. ramosus* (Walt.) B S P.]"<sup>1</sup> In its habit and in the entire margin of the upper leaves the plant so strongly resembles *E. ramosus* that, in spite of the more spreading character of the pubescence, it seems better treated as a northern variety of this widely distributed species. In its geographic range it is closely paralleled by a large number of plants occurring in the cooler moist regions of the Canadian zone. South of northern New England the plant is apparently rare in the East, but a few specimens indicate that, like many other Canadian plants, it extends southward through the hill country of western Connecticut.

A specimen in the Gray Herbarium from western New York, bearing the Torrey & Gray label, is marked *E. strigosus*  $\beta$ , and from its nearly glabrous stem and leaves is undoubtedly the plant described by Torrey & Gray as *E. strigosus*  $\beta$  with "stem and leaves nearly glabrous; the latter almost constantly entire, except the lowest."<sup>2</sup> Torrey & Gray, however, cited as a synonym *E. integrifolium* Bigelow,<sup>3</sup> which was described by Bigelow with the stem "smooth...with barely perceptible pubescence"; but, although a fragment of Bigelow's plant preserved in the Gray Herbarium shows his *E. integrifolium* to have a smoothish stem, the leaves are closely cinereous-strigose as in the ordinary form of the species.

Since no name seems to have been previously applied to the northern plant it may be called:—

ERIGERON RAMOSUS (Walt.) B S P., var. **septentrionalis**, n. var., caule folisque tenuiter hispidulis vel fere glabris.—Resembling *E. ramosus* but with the stem and leaves sparingly hispidulous or nearly glabrous, instead of cinereous-strigose.—Newfoundland and eastern Quebec to northern and western New England, northern and western New York, and Michigan; and from Washington to California and

<sup>1</sup> Gray, Synop. Fl. i. pt. 2, 219 (1884).

<sup>2</sup> Torr. & Gray, Fl. ii. 176 (1841).

<sup>3</sup> Bigel. Fl. Bost. ed. 2, 302 (1824).

Idaho. Type specimen in the Gray Herbarium: gravelly thickets along Harry's River, Newfoundland, August 18, 1910, *Fernald & Wiegand*, no. 4137.

Specimens examined:—NEWFOUNDLAND: see above. MAGDALEN ISLANDS: rocky slope of East Cape, Coffin Island, August 17, 1912, *Fernald, Long & St. John*, no. 6170. QUEBEC: dry open soil, Douglastown, August 21 & 22, 1904, *Collins, Fernald & Pease*; dry pasture, Bic, July 18, 1905, *J. R. Churchill*; boggy meadow, Bic, July 20, 1907, *Fernald & Collins*, no. 1189; ledges, west shore of Lake Memphremagog, August 5, 1903 (unusual form with villous base of stem), *J. R. Churchill*. PRINCE EDWARD ISLAND: dry railroad bank, Mt. Stewart, July 30, 1912, *Fernald, Bartram, Long & St. John*, no. 6168; dry sandy open fields, Tignish, August 6, 1912, *Fernald, Long & St. John*, no. 6169. NOVA SCOTIA: Pictou, July 21, 1907, *C. B. Robinson*, no. 532. MAINE: moist clayey slope, upper St. John River at Little Black River Rapids, September 11, 1907, *J. A. Cushman*, no. 2079; dry larch swamp, Presque Isle, July 12, 1902, *Williams, Collins & Fernald*; fields, Orono, September 19, 1889, *Fernald*; gravelly bank, Dover, September 1, 1894, *Fernald*; dry thicket, Sangerville, June 29, 1895, *Fernald*; Gilead, 1897, *Kate Furbish*; Fayette, 1876, *K. Furbish*; South Poland, 1893, 1895, *K. Furbish*; Brunswick, 1890, *K. Furbish*. NEW HAMPSHIRE: Sinclair's Hill, Franconia, September 28, 1896, *Faxon*; open ground, Jaffrey, July 14, 1897, *B. L. Robinson*, no. 214. VERMONT: Willoughby, July 24, 1896, *G. G. Kennedy*. CONNECTICUT: Middlebury, June 28, 1896, *W. M. Shepardson*; dry fields, Greenwich, July 9, 1907, *Cushman & Sanford*, no. 1139. NEW YORK: Axton, July 9, 1899, *Rowlee, Wiegand & Hastings*; western N. Y., *A. Gray*. MICHIGAN: fields and slashings, Turin, Marquette County, August 8, 1901, *Bronson Barlow*. IDAHO: neglected orchards and ditch banks, New Plymouth, June 24, 1910, *J. F. Macbride*, no. 278. WASHINGTON: Cascade Mountains to Fort Colville, 1860, *Lyll*; Pullman, July 10, 1894, *Piper*, no. 1821; Cheney, *Mrs. Susan Tucker*, no. 99. OREGON: Union County, 1878, *Cusick*; wet meadows, John Day's River, July 5, 1897, *Cusick*, no. 1695. CALIFORNIA: Plumas County, 1875, *J. G. Lemmon*, no. 1005.



## JUNCUS MONOSTICHUS IN OHIO.

ALMON N. ROOD.

ON Oct. 13th, 1912, while walking across a large pasture field I noticed a strange and, to me, new species of *Juncus* growing among the somewhat brown and half dried grasses and sedges. A hasty collection of several specimens was made and upon returning home a more careful examination convinced me that the plant was *Juncus monostichus* Bartlett. An examination of records showed that if it was indeed this species my find was east of any reported range so, in order to check any possible error, specimens were sent to Prof. Robinson of the Gray Herbarium and to Prof. Schaffner of the Ohio State University, both of whom confirmed my identification.

This plant has not, so far as I can learn, been reported from Ohio. It appears distinct from any *Juncus* with which I am acquainted and the plants would at once attract the attention of a botanist because of the peculiar arrangement of the flowers which are erect in a single row on the upper side of the branches of inflorescence. These branches at this time had curled inward at the tips, presenting an almost scorpioid appearance.

This latter characteristic would probably not be evident earlier in the season but a dry summer and several severe frosts had partially turned their color from green to brown and caused the tips of the branches to roll inward.

Though several plants were found in this one spot I did not search the surrounding region to see if it was at all prevalent elsewhere but think the find is rare for this locality. There was nothing to indicate that the plant had been introduced as the station was in a large, natural pasture which had never been plowed and not near any evident source of plant introduction.

Growing with it were an abundance of typical *Juncus tenuis* Willd. and occasional plants of a form of *Juncus marginatus* Rostk. Next season I shall try and make a more thorough examination of the locality with respect to this species.

PHALANX, TRUMBULL Co., OHIO.

## MAGNOLIA TRIPETALA IN SPRINGFIELD, MASSACHUSETTS.

GEORGE E. STONE.

SOME time ago my attention was called to one of our cultivated southern magnolias (*Magnolia tripetala* L.) growing apparently spontaneously in Springfield, Mass. Being interested in the occurrence of this species in a locality so remote from its native habitat and wishing to learn more of its occurrence there, one day last summer I made a trip to the location. Dr. W. H. Chapin, of Springfield, who discovered these trees, was the first to call my attention to them. He had observed them growing in two distinct localities in Springfield and has been familiar with these groups for some years.

One small tree about nine years old is now growing in Edgewood swamp, which is only a few rods from a much travelled highway and near the Boston & Albany railroad. The other station, which I did not visit, is on the edge of a pond about a mile from the swamp and about two miles east of the center of the city, towards Wilbraham. The group located on the pond shore has, I understand, been practically exterminated by the woodsman's axe, although a number of fairly good sized trees formerly grew there. The Edgewood swamp tree is seven or eight feet high and is growing in rather dense shade, surrounded by tall trees and such undergrowth as poison sumach, *Ilex*, *Osmunda cinnamomea* and other ferns. The tree was making good growth and appeared to be perfectly at home. From its habit of growth it would seem easy for this tree to become established in this location.

There are a number of these trees in cultivation in Springfield, and it is presumed that the ripened seeds were gathered by birds and dropped at these two stations. As an ornamental tree *Magnolia tripetala* thrives better in our range than some of our native species, notwithstanding its typical southern habitat.

The factors underlying plant distribution and adaptation are quite complex and difficult of solution; and in these days of soil surveys it would be of some importance to agriculture if we could know more about the subject. It is by no means easy to explain why a tree like *Magnolia tripetala*, which grows so well under our climatic conditions, is not indigenous to this region, or even why *M. glauca*, which is regarded as indigenous here, should be restricted to such a narrow range.

AMHERST.

A PANICUM UNREPORTED IN NEW ENGLAND.— While collecting this fall on Arlington Heights I noticed an unusual looking Panicum. Field observation led me to believe that though it resembled *P. macrocarpon* Torr. (*P. Scribnerianum* Nash) it was not that species, and more careful study of my specimens, at home, verified my belief. It proved to be *P. oligosanthos* Schultes, a species hitherto unrecorded from New England or north of New Jersey.

*P. oligosanthos* Schultes closely resembles *P. macrocarpon* Torr., but is distinguishable from it, in the vernal state, by its more pubescent culms, rather taller growth and longer more hirsute spikelets which have a relatively longer, more acute first glume. The harsh puberulence of the lower surface of the blades is also in contrast with the glabrous or appressed pubescent (not the common form) lower surface of the blades of *P. macrocarpon*. In the autumnal state *P. oligosanthos* is usually more heavily branched than *P. macrocarpon* and is often top heavy in consequence, as were the specimens which first called my attention to the difference. Moreover the branches which also occur sparingly from the lower as well as middle and upper nodes are always shorter than the vernal culm which noticeably exceeds them, — whereas in the late state of *P. macrocarpon* the elongated autumnal branches exceed the relatively short vernal culm and panicle. Another rather striking difference is that the autumnal blades of *P. oligosanthos* are noticeably reduced in size, especially the later ones, and are widely spreading, — while the autumnal blades of *P. macrocarpon* are only slightly reduced in size and are strongly ascending. The panicles are even more included than in *P. macrocarpon* and are commonly reduced to a few spikelets.

The most northern specimens of *P. oligosanthos* in the Gray Herbarium are from Norfolk, Va., but Hitchcock and Chase Contr. Nat. Herb. 15: 285 (1910) report it from Atsion, New Jersey. My specimens are Nos. 497, rocky soil, Waverley, Mass., Oct. 13, 1912 and 498, same locality, Oct. 17, 1912. Specimens of the first number were sent to Washington, D. C., and verified by Mrs. Agnes Chase.

This species seems to be relatively plentiful in some of the rocky fields and along the roadside of the Waverley portion of Arlington Heights and was noted by me in small plots in several different places along about a mile of road. I did not see any plants of *P. macrocarpon*. — F. TRACY HUBBARD, Cambridge, Massachusetts.





OENOTHERA ANGUSTISSIMA, sp. nov.





OENOTHERA ANGUSTISSIMA, sp. nov.







OENOTHERA BIENNIS







OENOTHERA BIENNIS







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